technology pertaining to design, manufacture, maintenance and operation of the high HP State-of-Art Diesel Locomotives so as to enable Indian Railways to manufacture them in Diesel Locomotive Works/ Varanasi.

(iii) General Motors would keep Indian Railways constantly informed of all improvements in technology of their product made in the interim period during the currency of the contract.

(iv) General Motors would jointly work with Indian Railways to develop sources in India for manufacture of locomotive components other than those manufactured in Railways workshops so as to establish a 95% level of indigenisation by the end of the contract period. They also undertake the responsibility for establishing a manufacturing facility in India so as to make the electrical equipments available indigenously by March '98.

(v) Indian Railways would pay General Motors a lumpsum amount of US$ 17.5m in four phases spread over 10 years.

(c) Yes, Sir.

(d) The contract with General Motors, USA is under implementation and no US aid has been so far provided for this.

Jute Research under ICAR

2623. SHRI DILIP SINGH JUDEV: Will the Minister of AGRICULTURE be pleased to state:

(a) the achievement made in the field of jute research under ICAR at Barrackpore;

(b) whether the Jute Research Institute, Barrackpore is running smoothly;

(c) if not, the reasons therefor; and

(d) the steps being taken to ensure its smooth running?

THE MINISTER OF AGRICULTURE (SHRI CHATURANAN MISHRA): (a) The achievements made in the field of jute research by Central Research Institute for Jute & Allied Fibres, Barrackpore (ICAR) are given in the statement (*see* below).

(b) There were some problems reported regarding the Institute, but after assumption of the charge of a regular Director in February, 1996, the Institute has been functioning smoothly.

(c) and (d) Question does not arise.

Statement

Achievements made in the field of Jute research by Central Institute for Jute & Allied Fibres, Barrackpore

1. Varietal improvement and their impact:

Through continuous breeding efforts several high yielding varieties of Jute & Allied Fibre crops for different agroclimatic regions have been released for commerical cultivation:

1. Varieties released:

(a) **Jute:**

(i) **Corchorus olitorius**
JRO-632, JRO-878, JRO-7835, JRO-524 and JRO-3690

(ii) **C. capsularis**
JRC 321, JRC 212, JRC 7447, JRC 4444 and Hybrid 'C'.

(b) **Mesta:**

(i) Hibiscus cannabinus (Kenaf) HC 583.

(ii) **H. sabdariffa (Roselle)**
HS 4228 and HS 7910.

(c) **Ramie:** R-67-34

(d) **Sisal:** Hyrid No. 1

(e) **Sunhemp:** K-12-Black and K-12-Yellow

Some of the *olitorius* varieties of Jute like JRO 878 JRO-7835 and JRO 524,

resistant to premature flowering, are recommended for early sowing to enable Jute growers to take in four months remunerative fibre crops in Jute-Paddy + wheat cropping sequence. These varieties are in greater demand in Jute growing states.

2. *Germplasm collection, evaluation and maintenance:*

With the sustained efforts made indegenously & also with the help of International Jute Organisation, the germpalsm pool of jute & allied fibre increased upto 3795. These have been characterised and promising ones are being utilised in breeding programmes.

3. *Development of productive package of cultivation practices & cropping system:*

Productive package of cultivation practices starting from land preparation to the stage of harvest have been evolved, tested & perfected through field experimentations and finally recommended for general adoption to farms of jute growing states.

Jute based cropping system under rainfed, limited & assured irrigation conditions have been recommended. Most profitable cropping sequences recommended for such situations are Jute + Paddy + Paddy, Jute + Paddy + Wheat, Jute + Paddy + Potato/ Mustard/groundnut + Maize, Jute-Greangram/blackgram/soybean.

4. *Disease-Pest management*

Management practices for the control of major pests and diseases have been evolved with minimum use of chemical pesticides to avoid toxic hazards in the area. Hoogly wilt, created a threat to jute cultivation in the Hoogly district of West Bengal. This disease has been managed with the use of cultural (change of cropping system) method.

5. *Retting technoloyg:*

Quality of the fibre is one of the most important factors that determines the permium and level of acceptalslity by the industry. Therefore, the factors affecting retting & quality of jute & mesta have been identified & improved method of conventional pond retting has been recommended. Besides a fibre decorticating machine has been developed in the Institute. Fibres from green plants are extracted using this machine & then put under limited water for retting. Retting period is also reduced by 5-6 days as compared to whole plant conventional retting which takes 12—15 days. The volume of water required for the improved retting is also reduced by 40%. Ribboner, a simple manually operaed mechanical aid to separate bark in the form of ribbon keeping the jute stick intact has also been developed for the benefit of farmers.

6. *Mechanisation:*

The important machineries developed and in use are Single-row and four-row seed drills, wheel hoe, soil crust breaker, mesta plant cutter, fibre decorticators, Ribboner, thresher for jute & mesta seed and scrutching machine for extracting fibre of flax.

7. *Basic Research of economic and stratogic value:*

For the micropropagation of sisal through tissue culture, the technique for the production of plantlets in the laboratory has been standardised.

Jute (drystem) and mesta variety MT 150 (green plant) have been identifed as good soruces for the production of paper pulp.

Health Hazard due to Air Pollution

2624. SHRIMATI BASANTI SARMA: Will the Minister of ENVIRONMENT AND FORESTS be pleased to state:

(a) whether it is a fact that thousands of people are dying because of microscopic pollution in the air;

(b) whether any survey has been carried out by Government in this respect, if so the result thereof; and